Indiana IREAD-3 and ISTEP+ Statewide Readiness Test

Summary Report for January 29, 2016

Executive Summary

At 10:00 am Friday, January 29, the IDOE and Pearson conducted a successful second Statewide Readiness Test (SRT) as part of annual preparations to deliver the Spring 2016 IREAD-3 and ISTEP+ online assessments. These tests are being conducted to verify ahead of time that Pearson's systems and local infrastructure are properly configured and ready to support the high volumes that will be experienced during live testing. Local Infrastructure Trials and Statewide Readiness Tests are a necessary and important part of the IDOE's and Pearson's collective commitment to providing the smoothest operational testing experience possible.

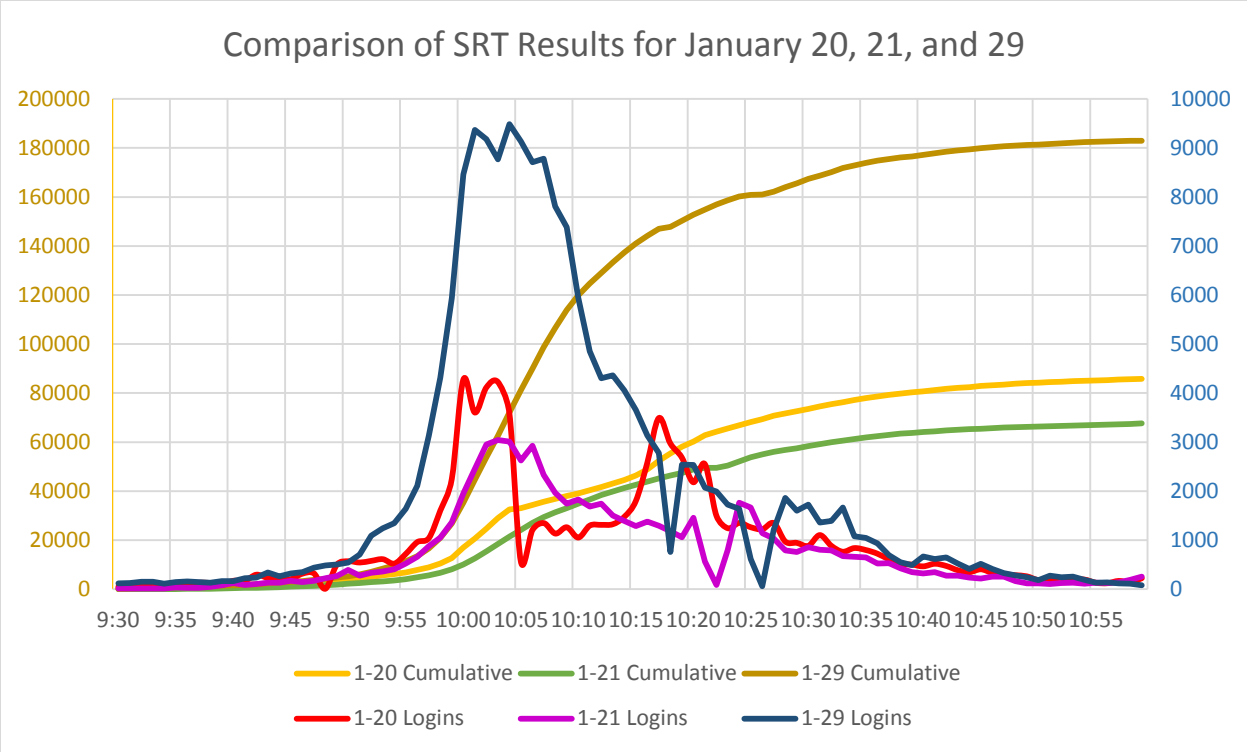
Over the course of an hour last Friday, Pearson's systems recorded more than 180,000 logins and a sustained peak of more than 50,000 concurrent users - more than double the volume experienced during the previous SRT on Wednesday, January 20. Help Desk call volume during the SRT was low and reports from the field indicated that testing was largely successful.

In addition to these widespread reports of success, there were also isolated reports of brief slowdowns, disconnects, and other error codes being displayed. Some of these are the result of "user error" or local configuration issues, however we did record two abnormal server conditions around 10:17 and 10:25am Eastern time that self-corrected within 2-3 minutes but may have led to some of the issues reported. Pearson's hosting team is currently reviewing server logs to determine what may have led to these two brief events and will provide any definitive findings and corrective actions in a later report. Meanwhile, our Help Desk and field support teams continue to work closely with schools and school corporations throughout the state to address any and all issues reported in order to continually to improve local capacity, reliability, and performance.

In addition, as a result of one of these brief server conditions, a manual notification sent internally at Pearson as part of our normal monitoring procedures inadvertently turned our external system status flag to yellow, indicating degraded performance, when in fact the condition had already resolved itself. Because the flag was left on for over an hour, it was noticed by some in the field as being unusual, causing them to question its validity. We are currently reviewing our internal notification and system status procedures and will provide an update in a later report regarding any changes that may be made as a result of this review.

Analysis of SRT Results to Date

The following graphic illustrates differences in login volumes and traffic patterns for the initial January 20 SRT, the January 21 makeup, and the second SRT on January 29. The jagged lines correspond to the scale on the right and indicate the total number of distinct logins received per minute (factoring out multiple attempts by the same user). The smoother upward arching lines indicate total cumulative login volumes.



The red line represents logins per minute on January 20, when Pearson experienced a previously reported slowdown due to a configuration change in the Elastic Load Balancers (ELB) that are part of the Amazon Web Services (AWS) hosting infrastructure for Pearson's online testing systems. Note the pronounced drop in logins per minute between approximately 10:05 and 10:15. Contrast this pattern with the purple line representing logins for the following day, January 21, when the ELB "pre-warming" was put into effect. Although traffic on January 21 was lower overall, there was a similarly sharp build starting just before 10am, and volumes proceeded in a much more smooth progression.

Now compare these two days to January 29, which is represented by the dark blue line. As is shown here, the ramp-up on January 29 was similarly as steep as on January 20, but the total number of logins per minute exceeded 9,000, whereas logins per minute on January 20 were around 4,000. In addition, the January 29 test shows a much smoother progression, as was experienced on January 21 when the ELB "pre-warming" was put into effect.

In addition to logins per minute, cumulative login data show a similarly significant difference between the January 29 SRT and either of the two previous SRT days. Notice that the brown line representing cumulative logins for January 29 is much steeper than the yellow or green lines representing January 20 and 21, respectively. The increased steepness of the January 29 line is the result of a much higher rate of login during a very short amount of time, from approximately 9:55 to 10:15am. Taken together,

these results demonstrate that the configuration changes made were successful and that our servers can successfully handle severe ramp-ups and high sustained volumes of testing.

Projected ISTEP+ Testing Capacity

We are currently projected to deliver approximately 200,000 ISTEP+ Part 1 assessments online during the two-week test administration window from February 29 through March 11. Assuming an average of 1 hour per test and an average of five testing hours per school day throughout the entire window, this equates to an average of 4,000 concurrent testers each day, less than one-tenth of the peak volume demonstrated during the January 29 SRT. For Part 2 testing, we expect to administer approximately 1.5m tests online in the three-week window from April 18 to May 6. At an average of approximately 2 hours per test, this equates to an average of approximately 40,000 concurrent testers throughout each day, which is again well under the peak established during the SRT.